

PATENT ABSTRACTS OF JAPAN

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(54) COCOA DRINK

(57)Abstract:

PURPOSE: To provide a cocoa drink which causes no formation of crystalline suspension mainly consisting of fats such as cacao butter, even when stored at such a temperature as the fats such as cacao butter in the cocoa drink intrinsically crystallize.

CONSTITUTION: A liquid mixture containing the cocoa component, the milk component, the sweetener and water is combined with 0.2 to 5.0wt%, based on the fat components in the liquid mixture, of lipophilic polyglycerol fatty acids esters of 80 to 100 degree of esterification, which are formed from polyglycerol of 3 to 15 average degree of polymerization and mixed fatty acids containing saturated and unsaturated fatty acids and having 10 to 60 iodine value to give the objective cocoa drink.

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CLAIMS

[Claim(s)]

[Claim 1] The cocoa drink characterized by coming to add oleophilic polyglyceryl fatty acid ester at 0.2 – 5.0% of the weight of a rate to the fat contained in this mixed liquor at the mixed liquor which consists of a cocoa component, a milk component, sweetners, and water.

[Claim 2] The cocoa drink according to claim 1 with which average degree of polymerization consists of polyglycerin, and the saturated fatty acid and unsaturated fatty acid of 3–15, and oleophilic polyglyceryl fatty acid ester is characterized by being ester with the mixed fatty acid the iodine number of whose is 10–60, and whenever [esterification] being 80 – 100%.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the cocoa drink which does not produce the crystalline suspended matter which makes a subject especially parts for fats and oils, such as cocoa butter, about a cocoa drink.

[0002]

[Description of the Prior Art] After mixing a saccharide to cocoa powder or a chocolate liquor, mixing water in a dairy-products list and performing homogenization by the homogenizer, a can is filled up with a cocoa drink, and it performs sterilization actuation and is manufactured. From the former, the sucrose fatty acid ester of a hydrophilic property is added by the cocoa drink for the purpose of the emulsification and distribution for fats and oils of cocoa butter, milk fat, etc. And as examples other than sucrose fatty acid ester, the cocoa drink which added 11 or more HLB hydrophilic polyglyceryl fatty acid ester and which does not produce the latter suspended matter of nebula is indicated by JP,61-141873,A. On the other hand, to JP,59-95847,A, the hydrophilic polyglyceryl fatty acid ester which is monochrome or diester is added, and lactalbumin and the coffee drink which prevented separation of milk fat are indicated.

[0003]

[Problem(s) to be Solved by the Invention] However, surfacing of the lipid globule by the specific gravity difference cannot be completely prevented, even if it adds the sucrose fatty acid ester of a hydrophilic property. Even if a lipid globule surfaces according to a specific gravity difference, when the lipid globule is maintained at stability, especially since it distributes, the lipid globule which surfaced by shaking lightly before drink does not become a problem. However, even if destruction of a lipid globule takes place by 121 degrees C and cruel heat sterilization like [for 30 minutes] or destruction does not take place, the lipid globule which surfaced with time unites, a lipid globule is destroyed, and, originally fat, such as cocoa butter which is the property crystalized in ordinary temperature, may crystalize by preservation at ordinary temperature or low temperature. In this case, the fat crystallized even if shaken before drink does not disappear, but becomes that to which commodity value fell remarkably.

[0004] Also in the cocoa drink which, on the other hand, added 11 or more HLB [which was indicated by JP,61-141873,A] hydrophilic polyglyceryl fatty acid ester, the lipid globule which destruction of a lipid globule took place by heat sterilization, or surfaced with time unites, and a lipid globule is destroyed. And probably because the polyglyceryl fatty acid ester of a hydrophilic property excels sucrose fatty acid ester in emulsification and a dispersion effect, what added hydrophilic polyglyceryl fatty acid ester does not produce crystalline suspended matter in the temperature beyond a room temperature, but when cold storage is carried out, crystalline suspended matter may generate winter, an ice vendor, etc.

[0005] In order to prevent generating of the crystalline suspended matter in such ordinary temperature and low temperature, the content of cocoa butter or cocoa butter Mr. fats and oils must be reduced, or the addition of the sucrose fatty acid ester of a hydrophilic property or the polyglyceryl fatty acid ester of a hydrophilic property must be increased. In this case, the flavor of a cocoa component is missing, or tastes, such as sucrose fatty acid ester and bitterness of polyglyceryl fatty acid ester itself, have a bad influence on the taste of a cocoa drink, and it does not become a satisfactory cocoa drink.

[0006] It is offering the cocoa drink with which this invention's is made in view of the trouble which the above cocoa drinks' have, the purpose's can control crystallization for fats and oils of cocoa butter etc., generating of crystalline suspended matter can be prevented, and flavor's is not spoiled with an additive or the taste of the additive itself does not do a bad influence.

[0007]

[Means for Solving the Problem and its Function] this invention person reached this invention paying attention to adding specific oleophilic polyglyceryl fatty acid ester, as a result of inquiring wholeheartedly for the purpose of obtaining the cocoa drink which does not produce the crystalline suspended matter which makes a subject parts for fats and oils, such as cocoa butter. That is, the summary of this invention is a cocoa drink characterized by coming to add oleophilic polyglyceryl fatty acid ester at 0.2 – 5.0% of the weight of a rate to the fat contained in this mixed liquor at the mixed liquor which consists of a cocoa component, a milk component, sweetners, and water.

[0008] It is desirable to use the cocoa powder whose cocoa butter content usually used is 10 – 24 % of the weight as a cocoa component in the cocoa drink of this invention. Moreover, cocoa butter Mr. fats and oils with a melting point of about 25–42 degrees C which operated palm oil, share fat, illipe butter, ape seed fat, coconut oil, palm kernel oil, etc. for purification, judgment, hardening, etc. instead of cocoa butter can be

used. The content of the above-mentioned cocoa component in the cocoa drink of this invention has 0.1 – 2.0 preferably desirable % of the weight 0.05 to 5.0% of the weight to the cocoa drink all weight of a final product as a content of cocoa butter or cocoa butter Mr. fats and oils. The content of cocoa butter and/or cocoa butter Mr. fats and oils is not delicious in [in less than 0.05 % of the weight] flavor, and if 5.0 % of the weight is exceeded, the stability of the emulsification in a mothball becomes [worsen, and it is slow also in flavor moreover, and] tedious and is not delicious. While it is delicious, the stability of emulsification is especially maintained at 0.1 – 2.0% of the weight of within the limits at the time of a mothball. However, when the large fats and oils of the melting point range ranging from the low melting point section to high-melting are added with dairy products like milk fat, it is very delicious to within the limits whose content of cocoa butter and/or cocoa butter Mr. fats and oils is 2.0 – 5.0 % of the weight, and the stability of emulsification at the time of a mothball is very good for it.

[0009] Especially as dairy products which constitute the milk component in this invention next, it is not limited and can be suitably used from dairy products, such as cow's milk, whole milk powder, skimmilk powder, a cream, butter, all fat condensed milk, cleaning condensed milk, and modified milk powder. And especially the addition of these dairy products in this invention may not be limited, and may be the milk beverage of 3.0 % of the weight or more of milk solid content, or may be the soft drinks of less than 3.0 % of the weight of milk solid content.

[0010] Furthermore in this invention, sweetners is added. Especially the class of sweetners is not limited and can use suitably sweetners, such as saccharides, such as sugar, grape sugar, fruit sugar, isomerized sugar, a starch syrup, maltitol, and a sorbitol, or sugar-alcohol.

[0011] And as oleophilic polyglyceryl fatty acid ester used in this invention, average degree of polymerization consists of polyglycerin, and the saturated fatty acid and unsaturated fatty acid of 3-15, and the oleophilic polyglyceryl fatty acid ester whenever [esterification / whose] it is ester with the mixed fatty acid the iodine number of whose is 10-60, and is 80 – 100% is desirable. namely, the average degree of polymerization which computed the polyglycerin which constitutes this oleophilic polyglyceryl fatty acid ester from the hydroxyl value — 3-15 — it is 4-10 preferably. There is no effectiveness that average degree of polymerization prevents crystallization for fats and oils of cocoa butter etc. to the ester of less than three polyglycerin. High-polymer polyglycerin with which average degree of polymerization exceeds 15 on the other hand is not desirable in order that it may become unsavory polyglyceryl fatty acid ester since purification is fully impossible, and this may spoil the flavor of a cocoa drink.

[0012] And the fatty acid which constitutes oleophilic polyglyceryl fatty acid ester is the mixture of saturated fatty acid and unsaturated fatty acid, and the range of the iodine number of the mixed fatty acid is 10-60. The fatty acid which constitutes the mixed fatty acid of the iodine numbers 10-60 is a fatty acid of carbon numbers 6-24, and can illustrate unsaturated fatty acid, such as saturated fatty acid, such as a caprylic acid, a lauric acid, a myristic acid, a palmitic acid, stearin acid, arachidic acid, and behenic acid, and palmitoleic acid, oleic acid, linolic acid, erucic acid. When there are many rates of saturated fatty acid and unsaturated fatty acid with which unsaturated fatty acid and the iodine number exceed 60 conversely when the rate of less than ten saturated fatty acid has much iodine number, crystallization for fats and oils of cocoa butter etc. cannot be prevented.

[0013] Next, whenever [esterification], i.e., the rate esterified among the hydroxyl groups of polyglycerin, is 80 – 100%, and it is preferably [90 – 100% of] good. There is no effectiveness that whenever [esterification] prevents crystallization for fats and oils of cocoa butter etc. to less than 80% of polyglyceryl fatty acid ester. And HLB of 80 – 100% of oleophilic polyglyceryl fatty acid ester is seven or less, and what was set to four or less HLB especially with the combination of a fatty acid is [whenever / esterification / which consists of mixture of polyglycerin and a fatty acid] desirable.

[0014] The addition of the oleophilic polyglyceryl fatty acid ester in this invention is 0.5 – 3.0 % of the weight preferably 0.2 to 5.0% of the weight to the total quantity for the milk fat originating in the fat contained to a cocoa drink, i.e., cocoa butter, cocoa butter Mr. fats and oils, and the added dairy products. The addition of oleophilic polyglyceryl fatty acid ester cannot prevent crystallization for fats and oils of cocoa butter etc. at less than 0.2 % of the weight to the fat contained to a cocoa drink. Moreover, it spoils the flavor of a cocoa drink and is not desirable to add exceeding 5.0 % of the weight to the fat which contains oleophilic polyglyceryl fatty acid ester to a cocoa drink.

[0015] Moreover, in this invention, in order to raise emulsification and the dispersibility of fat, it is desirable to use hydrophilic emulsifiers currently used conventionally, such as sucrose fatty acid ester and polyglyceryl fatty acid ester, and emulsifiers, such as oleophilic polyglyceryl fatty acid ester except having indicated further to these hydrophilic emulsifiers, a glycerine fatty acid ester, organic-acid MONOGURI, a sorbitan fatty acid ester and lecithin, oleophilic sucrose fatty acid ester, and the above, may be used together and used. Moreover, the perfume usually used for the cocoa drink as other components in addition to each above-mentioned component, coloring matter, vitamins, a mineral, salt, a thickener, etc. can be suitably used for the cocoa drink of this invention.

[0016] Furthermore, although especially the pH value of the cocoa drink of this invention is not limited, relation, such as the taste, shelf life, and a color tone, to its pH 5.7-7.5 is desirable.

[0017] And the cocoa drink concerning this invention stirs the mixed solution which carried out specified quantity combination of oleophilic polyglyceryl fatty acid ester, the warm water, etc. with a high speed mixer etc. to the above-mentioned cocoa component, dairy products, and a sweetners pan, and after homogenizing with a homogenizer, it can manufacture it easily by pasteurizing.

[0018]

[Example] etc. Based on an example etc., this invention is explained below.

1. The polyglycerin of average degree of polymerization 2, 3, 6, 10, 15, and 16 was obtained by adding 1 % of the weight of sodium hydroxides to one to synthetic example 14 glycerol, carrying out a condensation polymerization reaction, diluting with 250 degrees C with water under a nitrogen air current, adding and decolorizing activated carbon, and condensing further, after carrying out ion-exchange-resin processing and desalting. The beef tallow fatty-acid independent (synthetic example 1) of the iodine number 55, a beef tallow fatty acid, and the palm oil fatty acid of the iodine number 10 are mixed so that it may become whenever [iodine number / which is shown in Table 1 at this /, and esterification] (the synthetic examples 2-4, 8, 13, 14), or oleic acid — independent (synthetic example 9) and stearin acid — mixed independent (synthetic example 10), oleic acid, and stearin acid (11 the synthetic examples 5-7, 12), it was made to react in addition until the acid number became two or less at 230-240 degrees C, and various kinds of oleophilic polyglyceryl fatty acid ester was obtained.

[0019]

[Table 1]

合成例	ポリグリセリンの重合度 ¹⁾	混合脂肪酸のヨウ素価	エステル化度 ²⁾	H L B
1	3	55	91	2.2
2	6	15	80	3.9
3	6	35	100	2.8
4	10	25	93	3.5
5	10	10	88	3.2
6	10	60	88	3.2
7	15	45	88	3.4
8	2	35	93	2.0
9	3	90	90	2.2
10	6	0	85	3.0
11	10	72	93	3.0
12	10	5	88	3.2
13	10	25	73	4.5
14	16	35	93	3.6

注1) 水酸基価から算出した平均重合度

2) エステル化された水酸基の割合 (%)

[0020] Examples 1-12, examples 1-10 of a comparison Cocoa powder (12 % of the weight content of cocoa butter) 1.00 Weight % cow's milk (milk fat 3-% of the weight content per part) 20.00 ** cane sugar 5.50 ** oleophilic polyglyceryl fatty acid ester It indicates to Tables 2 and 3. (Synthetic examples 1-14 given in Table 1) ***** Warm water Residue Sum total 100.00 After mixing each component of the weight % above and heating at 70 degrees C, it stirred for 5 minutes with the high speed mixer, and homogenized by the pressure of 150kg/cm² with the homogenizer. The can was filled up with this and 121 degrees C and sterilization for 30 minutes were performed. After having saved for three months at the room temperature, saving this by 5 degrees C on three kinds of conditions of three months and a temperature cycle (they are 10 cycles about 25 degrees C, 48 hours, and 5 degrees C and 48 hours) and shaking it lightly, it opened and the existence of crystalline suspended matter was investigated. The result of examples 1-12 is shown in Table 2, and the result of the examples 1-10 of a comparison is shown in Table 3.

[0021]

[Table 2]

	親油性 ポリグリセリン 脂肪酸エステル	飲料に対する 添加量 (重量%)	脂肪分に対する 添加量 (重量%)	結晶性浮遊物の有無 ¹⁾			風味 ⁵⁾
				5°C ²⁾	室温 ³⁾	サイクル ⁴⁾	
実施例1	合成例1	0.0144	2.0	—	—	—	○
実施例2	合成例2	0.0144	2.0	—	—	—	○
実施例3	合成例3	0.0144	2.0	—	—	—	○
実施例4	合成例4	0.0144	2.0	—	—	—	○
実施例5	合成例5	0.0144	2.0	—	—	—	○
実施例6	合成例6	0.0144	2.0	—	—	—	○
実施例7	合成例7	0.0144	2.0	—	—	—	○
実施例8	合成例4	0.0015	0.2	—	—	—	○
実施例9	合成例4	0.0036	0.5	—	—	—	○
実施例10	合成例4	0.0072	1.0	—	—	—	○
実施例11	合成例4	0.0216	3.0	—	—	—	○
実施例12	合成例4	0.0360	5.0	—	—	—	○

注 1) 結晶性浮遊物が、 — : なし + : やや量が少ない ++ : 多い

2) 5°C 3か月間

3) 室温 3か月間

4) 25°C (48時間) ⇄ 5°C (48時間) を 10サイクル (40日間)

5) 風味が、 ○ : 美味 × : やや異臭味あり

[0022]
[Table 3]

	親油性 ポリグリセリン 脂肪酸エステル	飲料に対する 添加量 (重量%)	脂肪分に対する 添加量 (重量%)	結晶性浮遊物の有無 ¹⁾			風味 ⁵⁾
				5°C ²⁾	室温 ³⁾	サイクル ⁴⁾	
比較例1	無添加	—	—	++	++	++	○
比較例2	合成例4	0.0007	0.1	+	+	++	○
比較例3	合成例4	0.0432	6.0	—	—	—	×
比較例4	合成例8	0.0144	2.0	+	—	+	○
比較例5	合成例9	0.0144	2.0	+	+	++	○
比較例6	合成例10	0.0144	2.0	++	++	++	○
比較例7	合成例11	0.0144	2.0	+	—	++	○
比較例8	合成例12	0.0144	2.0	++	+	++	○
比較例9	合成例13	0.0144	2.0	++	++	++	○
比較例10	合成例14	0.0144	2.0	—	—	—	×

注 1) 結晶性浮遊物が、 — : なし + : やや量が少ない ++ : 多い

2) 5°C 3か月間

3) 室温 3か月間

4) 25°C (48時間) ⇄ 5°C (48時間) を 10 サイクル (40日間)

5) 風味が、 ○ : 美味 × : やや異臭味あり

[0023] Although the cocoa drink was prepared like the example 1 except using the cocoa powder of the 22% of the weight content of example 13. cocoa butter, and using 0.0246 % of the weight (it being 3.0 % of the weight to all the fat contained to a cocoa drink) for Table 1 for the oleophilic polyglycerol fatty acid ester of the synthetic example 7 of a publication and being saved on three kinds of same conditions, there was nothing that was saved on condition that any, and, as for crystalline suspended matter, it was delicious.

[0024] Except not adding the oleophilic polyglycerol fatty acid ester of the synthetic example 7 of a publication, the cocoa drink was prepared to the example of comparison 11. table 1 like the example 13, and it saved on three kinds of same conditions in it. Although there was no crystalline suspended matter in what was saved at the room temperature, many crystalline suspended matter was looked at by what was saved at 5 degrees C, and the thing on which the temperature cycle was bet.

[0025] Although there was no crystalline suspended matter also in what was saved on condition that any although the cocoa drink was prepared to the example of comparison 12. table 1 like the example 13 except changing the addition of the oleophilic polyglycerol fatty acid ester of the synthetic example 7 of a publication to 0.0574% of the weight (it being 7.0 % of the weight to all the fat contained to a cocoa drink) and being saved on three kinds of same conditions in it, the odor and taste was sensed a little.

[0026] Example 14

Cocoa powder (22 % of the weight content of cocoa butter) 1.50 Weight % cow's milk (3 % of the weight per part, 8 % of the weight content of milk fat solid-not-fat) 30.00 ** Cane sugar 8.00 ** Salt 0.05 ** Deca glycerol monostearate 0.10 ** Oleophilic polyglycerol fatty acid ester (synthetic example 1 given in Table 1) 0.03 ** Warm water Residue The sum total 100.00 Although each component of the weight % above was mixed, and the milk beverage which contains cocoa like an example 1 was prepared and being saved on three kinds of same conditions, there was nothing that was saved on condition that any, and, as for crystalline suspended matter, it was delicious.

[0027] Example 15

Cocoa powder (12 % of the weight content of cocoa butter) 1.00 Weight % cow's milk (milk fat 3-% of the weight content per part) 20.00 ** Cane sugar 5.50 ** Salt 0.05 ** Sucrose fatty acid ester 0.10 ** Oleophilic polyglycerol fatty acid ester (Synthetic example 2 given in Table 1) 0.01 ** warm water Residue Sum total 100.00 Although each component of the weight % above was mixed, and the milk beverage which contains cocoa like an example 1 was prepared and being saved on three kinds of same conditions, there was nothing that was saved on condition that any, and, as for crystalline suspended matter, it was delicious.

[0028]

[Effect of the Invention] To the fat contained in this mixed liquor, by considering as the cocoa drink which comes to add specific oleophilic polyglyceryl fatty acid ester at 0.2 – 5.0% of the weight of a rate, the crystallization for fats and oils of the cocoa butter which will be crystallized if it is original can be controlled into the mixed liquor which consists of a cocoa component, a milk component, sweetners, and water according to this invention, and it can be provided with the cocoa drink which prevented generating of crystalline suspended matter. And flavor is spoiled with an additive or the cocoa drink with which the taste of the additive itself does not do a bad influence is obtained.

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TECHNICAL FIELD

[Industrial Application] This invention relates to the cocoa drink which does not produce the crystalline suspended matter which makes a subject especially parts for fats and oils, such as cocoa butter, about a cocoa drink.

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PRIOR ART

[Description of the Prior Art] After mixing a saccharide to cocoa powder or a chocolate liquor, mixing water in a dairy-products list and performing homogenization by the homogenizer, a can is filled up with a cocoa drink, and it performs sterilization actuation and is manufactured. From the former, the sucrose fatty acid ester of a hydrophilic property is added by the cocoa drink for the purpose of the emulsification and distribution for fats and oils of cocoa butter, milk fat, etc. And as examples other than sucrose fatty acid ester, the cocoa drink which added 11 or more HLB hydrophilic polyglyceryl fatty acid ester and which does not produce the letter suspended matter of nebula is indicated by JP,61-141873,A. On the other hand, to JP,59-95847,A, the hydrophilic polyglyceryl fatty acid ester which is monochrome or diester is added, and lactalbumin and the coffee drink which prevented separation of milk fat are indicated.

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EFFECT OF THE INVENTION

[Effect of the Invention] To the fat contained in this mixed liquor, by considering as the cocoa drink which comes to add specific oleophilic polyglyceryl fatty acid ester at 0.2 – 5.0% of the weight of a rate, the crystallization for fats and oils of the cocoa butter which will be crystallized if it is original can be controlled into the mixed liquor which consists of a cocoa component, a milk component, sweetners, and water according to this invention, and it can be provided with the cocoa drink which prevented generating of crystalline suspended matter. And flavor is spoiled with an additive or the cocoa drink with which the taste of the additive itself does not do a bad influence is obtained.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, surfacing of the lipid globule by the specific gravity difference cannot be completely prevented, even if it adds the sucrose fatty acid ester of a hydrophilic property. Even if a lipid globule surfaces according to a specific gravity difference, when the lipid globule is maintained at stability, especially since it distributes, the lipid globule which surfaced by shaking lightly before drink does not become a problem. However, even if destruction of a lipid globule takes place by 121 degrees C and cruel heat sterilization like [for 30 minutes] or destruction does not take place, the lipid globule which surfaced with time unites, a lipid globule is destroyed, and, originally fat, such as cocoa butter which is the property crystallized in ordinary temperature, may crystallize by preservation at ordinary temperature or low temperature. In this case, the fat crystallized even if shaken before drink does not disappear, but becomes that to which commodity value fell remarkably.

[0004] Also in the cocoa drink which, on the other hand, added 11 or more HLB [which was indicated by JP,61-141873,A] hydrophilic polyglyceryl fatty acid ester, the lipid globule which destruction of a lipid globule took place by heat sterilization, or surfaced with time unites, and a lipid globule is destroyed. And probably because the polyglyceryl fatty acid ester of a hydrophilic property excels sucrose fatty acid ester in emulsification and a dispersion effect, what added hydrophilic polyglyceryl fatty acid ester does not produce crystalline suspended matter in the temperature beyond a room temperature, but when cold storage is carried out, crystalline suspended matter may generate winter, an ice vendor, etc.

[0005] In order to prevent generating of the crystalline suspended matter in such ordinary temperature and low temperature, the content of cocoa butter or cocoa butter Mr. fats and oils must be reduced, or the addition of the sucrose fatty acid ester of a hydrophilic property or the polyglyceryl fatty acid ester of a hydrophilic property must be increased. In this case, the flavor of a cocoa component is missing, or tastes, such as sucrose fatty acid ester and bitterness of polyglyceryl fatty acid ester itself, have a bad influence on the taste of a cocoa drink, and it does not become a satisfactory cocoa drink.

[0006] It is offering the cocoa drink with which this invention's is made in view of the trouble which the above cocoa drinks' have, the purpose's can control crystallization for fats and oils of cocoa butter etc., generating of crystalline suspended matter can be prevented, and flavor's is not spoiled with an additive or the taste of the additive itself does not do a bad influence.

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OPERATION

[Means for Solving the Problem and its Function] this invention person reached this invention paying attention to adding specific oleophilic polyglycerol fatty acid ester, as a result of inquiring wholeheartedly for the purpose of obtaining the cocoa drink which does not produce the crystalline suspended matter which makes a subject parts for fats and oils, such as cocoa butter. That is, the summary of this invention is a cocoa drink characterized by coming to add oleophilic polyglycerol fatty acid ester at 0.2 – 5.0% of the weight of a rate to the fat contained in this mixed liquor at the mixed liquor which consists of a cocoa component, a milk component, sweetners, and water.

[0008] It is desirable to use the cocoa powder whose cocoa butter content usually used is 10 – 24 % of the weight as a cocoa component in the cocoa drink of this invention. Moreover, cocoa butter Mr. fats and oils with a melting point of about 25–42 degrees C which operated palm oil, share fat, illipe butter, ape seed fat, coconut oil, palm kernel oil, etc. for purification, judgment, hardening, etc. instead of cocoa butter can be used. The content of the above-mentioned cocoa component in the cocoa drink of this invention has 0.1 – 2.0 preferably desirable % of the weight 0.05 to 5.0% of the weight to the cocoa drink all weight of a final product as a content of cocoa butter or cocoa butter Mr. fats and oils. The content of cocoa butter and/or cocoa butter Mr. fats and oils is not delicious in [in less than 0.05 % of the weight] flavor, and if 5.0 % of the weight is exceeded, the stability of the emulsification in a mothball becomes [worsen, and it is slow also in flavor moreover, and] tedious and is not delicious. While it is delicious, the stability of emulsification is especially maintained at 0.1 – 2.0% of the weight of within the limits at the time of a mothball. However, when the large fats and oils of the melting point range from the low melting point section to high-melting are added with dairy products like milk fat, it is very delicious to within the limits whose content of cocoa butter and/or cocoa butter Mr. fats and oils is 2.0 – 5.0 % of the weight, and the stability of emulsification at the time of a mothball is very good for it.

[0009] Especially as dairy products which constitute the milk component in this invention next, it is not limited and can be suitably used from dairy products, such as cow's milk, whole milk powder, skimmilk powder, a cream, butter, all fat condensed milk, cleaning condensed milk, and modified milk powder. And especially the addition of these dairy products in this invention may not be limited, and may be the milk beverage of 3.0 % of the weight or more of milk solid content, or may be the soft drinks of less than 3.0 % of the weight of milk solid content.

[0010] Furthermore in this invention, sweetners is added. Especially the class of sweetners is not limited and can use suitably sweetners, such as saccharides, such as sugar, grape sugar, fruit sugar, isomerized sugar, a starch syrup, maltitol, and a sorbitol, or sugar-alcohol.

[0011] And as oleophilic polyglycerol fatty acid ester used in this invention, average degree of polymerization consists of polyglycerin, and the saturated fatty acid and unsaturated fatty acid of 3–15, and the oleophilic polyglycerol fatty acid ester whenever [esterification / whose] it is ester with the mixed fatty acid the iodine number of whose is 10–60, and is 80 – 100% is desirable. namely, the average degree of polymerization which computed the polyglycerin which constitutes this oleophilic polyglycerol fatty acid ester from the hydroxyl value — 3–15 — it is 4–10 preferably. There is no effectiveness that average degree of polymerization prevents crystallization for fats and oils of cocoa butter etc. to the ester of less than three polyglycerin. High-polymer polyglycerin with which average degree of polymerization exceeds 15 on the other hand is not desirable in order that it may become unsavory polyglycerol fatty acid ester since purification is fully impossible, and this may spoil the flavor of a cocoa drink.

[0012] And the fatty acid which constitutes oleophilic polyglycerol fatty acid ester is the mixture of saturated fatty acid and unsaturated fatty acid, and the range of the iodine number of the mixed fatty acid is 10–60. The fatty acid which constitutes the mixed fatty acid of the iodine numbers 10–60 is a fatty acid of carbon numbers 6–24, and can illustrate unsaturated fatty acid, such as saturated fatty acid, such as a caprylic acid, a lauric acid, a myristic acid, a palmitic acid, stearin acid, arachidic acid, and behenic acid, and palmitoleic acid, oleic acid, linolic acid, erucic acid. When there are many rates of saturated fatty acid and unsaturated fatty acid with which unsaturated fatty acid and the iodine number exceed 60 conversely when the rate of less than ten saturated fatty acid has much iodine number, crystallization for fats and oils of cocoa butter etc. cannot be prevented.

[0013] Next, whenever [esterification], i.e., the rate esterified among the hydroxyl groups of polyglycerin, is 80 – 100%, and it is preferably [90 – 100% of] good. There is no effectiveness that whenever [esterification] prevents crystallization for fats and oils of cocoa butter etc. to less than 80% of polyglycerol fatty acid ester. And HLB of 80 – 100% of oleophilic polyglycerol fatty acid ester is seven or less, and what was set to four or less HLB especially with the combination of a fatty acid is [whenever / esterification / which

consists of mixture of polyglycerin and a fatty acid] desirable.

[0014] The addition of the oleophilic polyglyceryl fatty acid ester in this invention is 0.5 – 3.0 % of the weight preferably 0.2 to 5.0% of the weight to the total quantity for the milk fat originating in the fat contained to a cocoa drink, i.e., cocoa butter, cocoa butter Mr. fats and oils, and the added dairy products. The addition of oleophilic polyglyceryl fatty acid ester cannot prevent crystallization for fats and oils of cocoa butter etc. at less than 0.2 % of the weight to the fat contained to a cocoa drink. Moreover, it spoils the flavor of a cocoa drink and is not desirable to add exceeding 5.0 % of the weight to the fat which contains oleophilic polyglyceryl fatty acid ester to a cocoa drink.

[0015] Moreover, in this invention, in order to raise emulsification and the dispersibility of fat, it is desirable to use hydrophilic emulsifiers currently used conventionally, such as sucrose fatty acid ester and polyglyceryl fatty acid ester, and emulsifiers, such as oleophilic polyglyceryl fatty acid ester except having indicated further to these hydrophilic emulsifiers, a glycerine fatty acid ester, organic-acid MONOGURI, a sorbitan fatty acid ester and lecithin, oleophilic sucrose fatty acid ester, and the above, may be used together and used. Moreover, the perfume usually used for the cocoa drink as other components in addition to each above-mentioned component, coloring matter, vitamins, a mineral, salt, a thickener, etc. can be suitably used for the cocoa drink of this invention.

[0016] Furthermore, although especially the pH value of the cocoa drink of this invention is not limited, relation, such as the taste, shelf life, and a color tone, to its pH 5.7–7.5 is desirable.

[0017] And the cocoa drink concerning this invention stirs the mixed solution which carried out specified quantity combination of oleophilic polyglyceryl fatty acid ester, the warm water, etc. with a high speed mixer etc. to the above-mentioned cocoa component, dairy products, and a sweeteners pan, and after homogenizing with a homogenizer, it can manufacture it easily by pasteurizing.

[0018]

[Example] etc. Based on an example etc., this invention is explained below.

1. The polyglycerin of average degree of polymerization 2, 3, 6, 10, 15, and 16 was obtained by adding 1 % of the weight of sodium hydroxides to one to synthetic example 14 glycerol, carrying out a condensation polymerization reaction, diluting with 250 degrees C with water under a nitrogen air current, adding and decolorizing activated carbon, and condensing further, after carrying out ion-exchange-resin processing and desalting. The beef tallow fatty-acid independent (synthetic example 1) of the iodine number 55, a beef tallow fatty acid, and the palm oil fatty acid of the iodine number 10 are mixed so that it may become whenever [iodine number / which is shown in Table 1 at this /, and esterification] (the synthetic examples 2–4, 8, 13, 14), or oleic acid — independent (synthetic example 9) and stearin acid — mixed independent (synthetic example 10), oleic acid, and stearin acid (11 the synthetic examples 5–7, 12), it was made to react in addition until the acid number became two or less at 230–240 degrees C, and various kinds of oleophilic polyglyceryl fatty acid ester was obtained.

[0019]

[Table 1]

合成例	ポリグリセリン の重合度 ¹⁾	混合脂肪酸の ヨウ素価	エステル化度 ²⁾	H L B
1	3	55	91	2.2
2	6	15	80	3.9
3	6	35	100	2.8
4	10	25	93	3.5
5	10	10	88	3.2
6	10	60	88	3.2
7	15	45	88	3.4
8	2	35	93	2.0
9	3	90	90	2.2
10	6	0	85	3.0
11	10	72	93	3.0
12	10	5	88	3.2
13	10	25	73	4.5
14	16	35	93	3.6

注 1) 水酸基価から算出した平均重合度

2) エステル化された水酸基の割合 (%)

[0020] Examples 1-12, examples 1-10 of a comparison Cocoa powder (12 % of the weight content of cocoa butter) 1.00 Weight % cow's milk (milk fat 3-% of the weight content per part) 20.00 ** cane sugar 5.50 ** oleophilic polyglycerol fatty acid ester It indicates to Tables 2 and 3. (Synthetic examples 1-14 given in Table 1) Addition of Warm water Residue Sum total 100.00 Each component of the weight % above After mixing and heating at 70 degrees C, it stirred for 5 minutes with the high speed mixer, and homogenized by the pressure of 150kg/cm² with the homogenizer. The can was filled up with this and 121 degrees C and sterilization for 30 minutes were performed. After having saved for three months at the room temperature, saving this by 5 degrees C on three kinds of conditions of three months and a temperature cycle (they are 10 cycles about 25 degrees C, 48 hours, and 5 degrees C and 48 hours) and shaking it lightly, it opened and the existence of crystalline suspended matter was investigated. The result of examples 1-12 is shown in Table 2, and the result of the examples 1-10 of a comparison is shown in Table 3.

[0021]

[Table 2]

	親油性 ポリグリセリン 脂肪酸エステル	飲料に対する添加量 (重量%)	脂肪分に対する添加量 (重量%)	結晶性浮遊物の有無 ¹⁾			風味 ⁵⁾
				5°C ²⁾	室温 ³⁾	サイクル ⁴⁾	
実施例1	合成例1	0.0144	2.0	—	—	—	○
実施例2	合成例2	0.0144	2.0	—	—	—	○
実施例3	合成例3	0.0144	2.0	—	—	—	○
実施例4	合成例4	0.0144	2.0	—	—	—	○
実施例5	合成例5	0.0144	2.0	—	—	—	○
実施例6	合成例6	0.0144	2.0	—	—	—	○
実施例7	合成例7	0.0144	2.0	—	—	—	○
実施例8	合成例4	0.0015	0.2	—	—	—	○
実施例9	合成例4	0.0036	0.5	—	—	—	○
実施例10	合成例4	0.0072	1.0	—	—	—	○
実施例11	合成例4	0.0216	3.0	—	—	—	○
実施例12	合成例4	0.0360	5.0	—	—	—	○

注1) 結晶性浮遊物が、 — : なし + : やや量が少ない ++ : 多い

2) 5°C 3か月間

3) 室温 3か月間

4) 25°C (48時間) ⇄ 5°C (48時間) を 10サイクル (40日間)

5) 風味が、 ○: 美味 ×: やや異臭味あり

[0022]
[Table 3]

	親油性 ポリグリセリン 脂肪酸エスチル	飲料に対する添加量 (重量%)	脂肪分に対する添加量 (重量%)	結晶性浮遊物の有無 ¹⁾			風味 ⁵⁾
				5°C ²⁾	室温 ³⁾	サイクル ⁴⁾	
比較例1	無添加	—	—	++	++	++	○
比較例2	合成例4	0.0007	0.1	+	+	++	○
比較例3	合成例4	0.0432	6.0	—	—	—	×
比較例4	合成例8	0.0144	2.0	+	—	+	○
比較例5	合成例9	0.0144	2.0	+	+	++	○
比較例6	合成例10	0.0144	2.0	++	++	++	○
比較例7	合成例11	0.0144	2.0	+	—	++	○
比較例8	合成例12	0.0144	2.0	++	+	++	○
比較例9	合成例13	0.0144	2.0	++	++	++	○
比較例10	合成例14	0.0144	2.0	—	—	—	×

注 1) 結晶性浮遊物が、 — : なし + : やや量が少ない ++ : 多い

2) 5°C 3か月間

3) 室温 3か月間

4) 25°C (48時間) ⇄ 5°C (48時間) を 10サイクル (40日間)

5) 風味が、 ○ : 美味 × : やや異臭味あり

[0023] Although the cocoa drink was prepared like the example 1 except using the cocoa powder of the 22 % of the weight content of example 13. cocoa butter, and using 0.0246 % of the weight (it being 3.0 % of the weight to all the fat contained to a cocoa drink) for Table 1 for the oleophilic polyglycerol fatty acid ester of the synthetic example 7 of a publication and being saved on three kinds of same conditions, there was nothing that was saved on condition that any, and, as for crystalline suspended matter, it was delicious.

[0024] Except not adding the oleophilic polyglycerol fatty acid ester of the synthetic example 7 of a publication, the cocoa drink was prepared to the example of comparison 11. table 1 like the example 13, and it saved on three kinds of same conditions in it. Although there was no crystalline suspended matter in what was saved at the room temperature, many crystalline suspended matter was looked at by what was saved at 5 degrees C, and the thing on which the temperature cycle was bet.

[0025] Although there was no crystalline suspended matter also in what was saved on condition that any although the cocoa drink was prepared to the example of comparison 12. table 1 like the example 13 except changing the addition of the oleophilic polyglycerol fatty acid ester of the synthetic example 7 of a publication to 0.0574% of the weight (it being 7.0 % of the weight to all the fat contained to a cocoa drink) and being saved on three kinds of same conditions in it, the odor and taste was sensed a little.

[0026] Example 14

Cocoa powder (22 % of the weight content of cocoa butter) 1.50 Weight % cow's milk (3 % of the weight per part, 8 % of the weight content of milk fat solid-not-fat) 30.00 ** Cane sugar 8.00 ** Salt 0.05 ** Deca glycerol monostearate 0.10 ** Oleophilic polyglycerol fatty acid ester (synthetic example 1 given in Table 1) 0.03 ** warm water Residue Sum total 100.00 Mix each component of the weight % above, and make it be the same as that of an example 1. Although the milk beverage containing cocoa was prepared and being saved on three kinds of same conditions, there was nothing that was saved on condition that any, and, as for crystalline suspended matter, it was delicious.

[0027] Example 15

Cocoa powder (12 % of the weight content of cocoa butter) 1.00 Weight % cow's milk (milk fat 3-% of the weight content per part) 20.00 ** Cane sugar 5.50 ** Salt 0.05 ** Sucrose fatty acid ester 0.10 ** Oleophilic polyglycerol fatty acid ester (Synthetic example 2 given in Table 1) 0.01 ** warm water Residue Sum total 100.00 Mix each component of the weight % above and make it be the same as that of an example 1. Although the milk beverage containing cocoa was prepared and being saved on three kinds of same conditions, there was nothing that was saved on condition that any, and, as for crystalline suspended matter, it was delicious.

[Translation done.]